The book is a mine of up-to-date information on electron optical technique advances (one-quarter) and applications to current problems in materials science and engineering (three-quarters). Applications are broadly concerned with interfaces, plastic deformation, ferrous alloys, composites, environmental effects, radiation damage, ceramics, and

High-voltage electron microscopy is covered extensively by numerous contributors from the technique standpoint and is also in evidence in the applications. Here Swann's work with environmental stages is particularly noteworthy and gives in situ micrographs showing the reduction of hematite. Electron damage in Cu, Ni, Al, and graphite is covered in interesting articles by several authors. Wolfenden et al. review the general features of neutron irradiation swelling in structural materials, making clear the important contribution of electron microscopy.

The use of the multibeam electron microscope technique to image the unit cell is proving a powerful means of looking at defect structures (Wadsley defects) in nonstoichiometric oxide crystals. The work of Allpress and collaborators at CSIRO in Melbourne has received little attention from metallurgists and materials scientists, and it is refreshing to see a paper on the so-called solid solutions of WO3 and TiO₂ in Nb₂O₅ in this volume.

"Tweed" structures in certain precipitation alloys, such as Cu-Be, when aged at low temperature have remained something of a mystery. Interpretation of these structures as strain contrast effects is further clarified in the paper by Fillingham, Leamy, and Tanner, who have simulated the main features of such images in the computer on rather simple models of elastically isotropic crystals containing dense nonrandom arrays of precipitates.

Electron analyzing and energy selecting microscopy is still in the formative stage of technique development. Silcox and Vincent present encouraging preliminary results obtained on the equipment developed at Cornell University. This uses a Wien analyzer.

Both the principles and applications of electron channeling patterns obtained with the scanning electron microscope are thoroughly covered in papers by Schulson and by Stickler and Booker. The latter used the "rocking beam" technique to obtain selected area patterns from regions down to $5-\mu m$ diameter by a depth of a few hundred angstroms.

The value of scanning electron microscopy and transmission electron microscopy in the semiconductor industry is particularly well brought out in the review by Meieran and Cass. Rudee obtained dark-field electron microscopic evidence of the existence of 15- to 20-A-diameter ordered domains in amorphous Ge and Si films.

Important advances are reported for nonmetals on the characterization of microstructures, for example, in carbides and nitrides of vanadium, titanium, and niobium by Lewis et al. and in boron-doped vanadium carbide by Hollox et al., who observed planar precipitation.

Activity continues in the composite field in a wide variety of materials. The work on a new family of glassceramics by Chyung et al. of Corning Glass Works is of particular interest. The microstructure consists of twodimensional mica crystals in a glass matrix. The dispersion of easily cleavable flakes confers machinability, although the matrix is brittle. The flakes can be regarded as built-in cracks but also act as crack stoppers, thus increasing the fracture energy. Altogether a fascinating situation.

This book has something to offer almost everybody concerned recent advances in knowledge of the structure of materials, and deserves a place on many bookshelves.

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New Books Received

Advances in Aerosol Physics. No. 1. V. A. Fedoseev, Ed. Translated from the Russian edition (Kiev, 1969). Israel Program for Scientific Translations, Jerusalem, 1971 (U.S. distributor, Halsted [Wiley], New York). vi, 170 pp., illus.

Advances in Enzymology and Related Areas of Molecular Biology. Vol. 36. Alton Meister, Ed. Interscience (Wiley), New York, 1972. viii, 374 pp., illus. \$15.95.

Animal Behavior, John Paul Scott, University of Chicago Press, Chicago, ed. 2, 1972. xii, 282 pp., illus. Cloth, \$12.50; paper, \$3.25. The College Library of Biological Sciences.

Bird Ambulance. Arline Thomas. Scribner, New York, 1972. x, 132 pp., illus. Paper, \$2.65. Reprint of the 1971 edition. Boiling Crisis and Critical Heat Flux. L. S. Tong. U.S. Atomic Energy Commission, Oak Ridge, Tenn., 1972 (available as TID-25887 from the National Technical Information Service, Springfield, Va.). viii, 84 pp., illus. Paper, \$3. AEC Critical Review Series.

Bridged Free Radicals. Leonard Kaplan. Dekker, New York, 1972. xviii, 482 pp., illus. \$24.50.

Carbon-Fluorine Compounds. Chemistry, Biochemistry and Biological Activities. A symposium, London, Sept. 1971. North-Holland, Amsterdam; Elsevier, New York, 1972. viii, 418 pp., illus. \$18.75. A Ciba Foundation Symposium.

Cervical Pain. Proceedings of a symposium, Stockholm, Jan. 1971. Carl Hirsch and Yngve Zotterman, Eds. Pergamon, New York, 1972. x, 221 pp., illus. \$21. Wenner-Gren Center International Symposium Series, vol. 19

Chambers Shorter Six-Figure Mathematical Tables. L. J. Comrie. Wiley, New York, 1972. xxvi, 390 pp. \$5.95.

Comprehensive Biochemistry. Florkin and Elmer H. Stotz, Eds. Vol. 30, A History of Biochemistry. Part 1, Proto-Biochemistry. Part 2, From Proto-Biochemistry to Biochemistry. Marcel Florkin. Elsevier, New York, 1972. xviii, 344 pp., illus. \$27.75.

Conserving Life on Earth. David W. Ehrenfeld. Oxford University Press, New York, 1972, xx, 360 pp., illus. \$10. Revision of Biological Conservation, 1970.

The Determination of Hydroxyl Groups. Stig Veibel. Academic Press, New York, 1972. xviii, 160 pp., illus. \$10.50 The Analysis of Organic Materials.

Drugs in American Society. Erich Goode. Knopf, New York, 1972. x, 262 pp. Paper, \$2.95. A Borzoi Book.

Dynamic Behavior of Processes. John C. Friedly. Prentice-Hall, Englewood Cliffs, N.J. 1972. xvi, 590 pp., illus. \$18.95. Prentice-Hall International Series in the Physical and Chemical Engineering Sciences.

Dynamics of Fluids in Porous Media. Jacob Bear. Elsevier, New York, 1972. xxii, 764 pp., illus. \$28. Environmental Science Series.

The Earth and Man. Rand McNally.

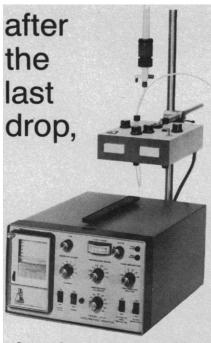
New York, 1972. 440 pp., illus. \$35. Electromagnetic Fields, Energy, and Waves. Leonard M. Magid. Wiley, New York, 1972. xvi, 782 pp., illus. \$16.95.

Environmental Quality and Social Responsibility. Proceedings of a symposium, Green Bay, Wis., Apr. 1971. Ravindra S. Khare, James W. Kolka, and Carol A. Pollis, Eds. University of Wisconsin, Green Bay, 1972. xiv, 220 pp. Paper,

Enzyme Engineering. Papers from conferences, Henniker, N.H., Aug. 1971, and San Francisco, Dec. 1971. Lemuel B. Wingard, Jr., Ed. Interscience (Wiley), New York, 1972. xiv, 416 pp., illus. \$12.50. Biotechnology and Bioengineering Symposium No. 3.

Essentials of Meteorology. D. H. Mc-Intosh and A. S. Thom. Wykeham, London; Springer-Verlag, New York, 1972. xvi, 240 pp., illus. \$7.50. Wykeham Science Series.

(Continued on page 916)



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NEW BOOKS RECEIVED

(Continued from page 858)

Ether Lipids. Chemistry and Biology. Fred Snyder, Ed. Academic Press, New York, 1972. xx, 434 pp., illus. \$27.50.

The Fascination of Reptiles. Maurice Richardson. Illustrated by Shaun Milne. Hill and Wang, New York, 1972. 240 pp.

Flora Palaestina. Part 2, Platanaceae to Umbelliferae. Michael Zohary. Israel Academy of Sciences and Humanities, Jerusalem, 1972. 2 vols. Text, viii, 490 pp. + map. Plates, unpaged.

Fortschritte der Chemie organischer Naturstoffe. Progress in the Chemistry of Organic Natural Products. Vol. 29. W. Herz, H. Grisbach, and G. W. Kirby, Eds. Springer-Verlag, New York, 1972. viii, 554 pp., illus. \$57.40.

From the Land and Back. Curtis K. Stadtfeld. Illustrated by Franklin Mc-Mahon. Scribner, New York, 1972. xx, 204 pp. \$6.95.

Functional Units in Protein Biosynthesis. A symposium, Varna, Bulgaria, Sept. 1971. R. A. Cox and A. A. Hadjiolov, Eds. Academic Press, New York, 1972. xii, 430 pp., illus. \$22. Seventh Federation of European Biochemical Societies Meeting, vol. 23.

Genetics and American Society. A Historical Appraisal. Kenneth M. Ludmerer. Johns Hopkins University Press, Baltimore, 1972. xiv, 222 pp. \$10.

Geo-Code. Vol. 2, East Edition. Sydney W. Gould. The Gould Fund, New Haven,

Conn., 1972. xiv, 348 pp., illus. \$35.

Handbook of Commercial Scientific
Instruments. Vol. 1, Atomic Absorption. Claude Veillon. Dekker, New York, 1972. xvi, 174 pp., illus. \$11.75.

Handbook of Sensory Physiology. Vol. 7, part 4, Visual Psychophysics. Dorothea Jameson and Leo M. Hurvich, Eds. Springer-Verlag, New York, 1972. x, 812 pp., illus. \$78.70.

Handbook of the Birds of India and Pakistan together with Those of Nepal, Sikkim, Bhutan and Ceylon. Vol. 5, Larks to the Grey Hypocolius. Sálim Ali and S. Dillion Ripley. Oxford University Press, New York, 1972. xvi, 276 pp. + plates. \$17.50.

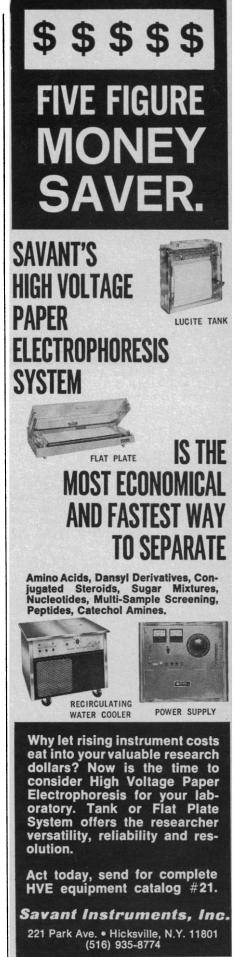
International Medical Care. A Comparison and Evaluation of Medical Care Services throughout the World. John Fry and W. A. J. Farndale, Eds. Washington Square East, Wallingford, Pa., 1972. viii, 342 pp., illus. \$10.

Investigations in the Triassic Chinle Formation. Carol S. Breed and William J. Breed, Eds. Museum of Northern Arizona, Flagstaff, 1972. viii, 104 pp., illus., + table. Paper, \$5. Museum of Northern Arizona Bulletin No. 47.

Light Scattering from Polymer Solutions. M. B. Huglin. Academic Press, New York, 1972. xviii, 886 pp., illus. \$45. Physical Chemistry, 27.

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Management-Oriented Management Information Systems. Jerome Kanter. Prentice-Hall, Englewood Cliffs, N.J., 1972. xviii, 270 pp., illus. \$11.50.

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The New Astronomies. Ben Bova. St. Martin, New York, 1972. x, 214 pp., illus. \$7.95.

New Pathways in Psychology. Maslow and the Post-Freudian Revolution. Colin Wilson. Taplinger, New York, 1972. 288 pp. \$7.95.

Proceedings of the Sixth Berkeley Symposium on Mathematical Statistics and Probability. June 1970. Vol. 2, Probability Theory. Lucien M. Le Cam, Jerzy Neyman, and Elizabeth L. Scott., Eds. University of California Press, Berkeley, 1972. 1, 606 pp. \$22.50.

Psychoanalytic Studies of the Sighted and the Blind. Dorothy Burlingham. International Universities Press, New York, 1972. viii, 396 pp. \$15.

Public Expectations and Health Care. Essays on the Changing Organizations of Health Services. David Mechanic. Wiley-Interscience, New York, 1972. xii, 314 pp. \$12.95.

Puzzles for Pleasure. E. R. Emmet. Emerson Books, New York, 1972. x, 310 pp., illus. \$6.95.

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Results and Problems in Cell Differentiation. A Series of Topical Volumes in Developmental Biology. J. Reinart, W. Beerman, and H. Ursprung, Eds. Springer-Verlag, New York, 1972. Vol. 3, Nucleic Acid Hybridization in the Study of Cell Differentiation. H. Ursprung, Ed. xii, 76 pp., illus. \$11.50. Vol. 4, Developmental Studies on Giant Chromosones. W. Beerman, Ed. xvi, 228 pp., illus. \$18.80. Vol. 5, The Biology of Imaginal Disks. H. Ursprung and R. Nöthiger, Eds. xviii, 172 pp., illus. \$14.60.

Reverse Osmosis Membrane Research. A symposium, Washington, D.C., Sept. 1971. H. K. Lonsdale and H. E. Podall, Eds. Plenum, New York, 1972. xii, 504 pp., illus. \$27.50.

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Soil Geography. J. G. Cruickshank.



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Wiley, New York, 1972. 256 pp., illus.

Techniques for the Assessment of Microbial Production and Decomposition in Fresh Waters. Y. I. Sorokin and H. Kadota, Eds. Published for the International Biological Programme by Blackwell, Oxford, England, 1972 (U.S. distributor, Davis, Philadelphia). xvi, 112 pp., illus. Paper, \$7. IBP Handbook No. 23.

Techniques of Biochemical and Biophysical Morphology. Vol. 1. David Glick and Robert M. Rosenbaum, Eds. Wiley-Interscience, New York, 1972. xii, 280 pp., illus. \$15.

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The Theory of Magnetic Resonance. Charles P. Poole, Jr., and Horacio A. Farach. Wiley-Interscience, New 1972. xvi, 452 pp., illus. \$19.95.

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To Live on This Earth. American Indian Education. Estelle Fuchs and Robert J. Havighurst. Doubleday, Garden City, N.Y., 1972. xviii, 390 pp. \$8.95.

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U.S. Health Care. What's Wrong and What's Right. Stephen P. Strickland. Universe Books, New York, 1972. 128 pp. Cloth, \$6.50; paper, \$2.45. A Potomac Associates Book.

USAN 10 and the USP Dictionary of Drug Names. Mary C. Griffiths, Marie J. Dickerman, and Lloyd C. Miller, Eds. United States Pharmacopeial Convention, Rockville, Md., 1972. xii, 184 pp., illus. Paper, \$15.

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Vibrational Spectroscopy of Solids. P. M. A. Sherwood. Cambridge University Press, New York, 1972. xii, 254 pp., illus. \$19.50. Cambridge Monographs in Physical Chemistry, 1.

Virology Monographs. Vol. 11. Canine Distemper Virus. M. J. G. Appel and J. H. Gillespie. Marburg Virus. R. Siegert. Springer-Verlag, New York, 1972. 154 pp., illus. 15.30.

The Wages of War 1816-1965. A Statistical Handbook. J. David Singer and Melvin Small. Wiley, New York, 1972.

xii, 420 pp. \$13.95. What Makes a Nuclear Power Plant Work? Erich Fuchs. Translated from the German edition (Munich, 1971) by Edite Kroll. Delacorte, New York, 1972. Unpaged, illus. \$4.95.

Will California Fall into the Sea? Peter Briggs. McKay, New York, 1972. x, 244 pp. + plates. \$6.95.

Women and Madness. Phyllis Chesler. Doubleday, Garden City, N.Y., 1972. xvi, 360 pp. + plates. \$8.95.

The Women and Their Pregnancies. The Collaborative Perinatal Study of the National Institute of Neurological Diseases and Stroke. Kenneth R. Niswander, Myron Gordon, and ten others, Eds. Saunders, Philadelphia, 1972. xvi, 540 pp., illus., + microfiche. \$17.

Words for Birds. A Lexicon of North American Birds with Biographical Notes. Edward S. Gruson. Quadrangle, New York, 1972. xiv, 306 pp., illus. \$8.95.

Workbook in Organic Chemistry. Exercises in the Properties, Behavior, and Synthesis of Organic Compounds. T. A. Geissman. Freeman, San Francisco, 1972. xiv, 246 pp., illus. Paper, \$4.95. A Series of Books in Chemistry.

World Directory of Collections of Cultures of Microorganisms. Compiled by S. M. Martin, C. Quadling, M. L. Jones, and V. B. D. Skerman. Wiley-Interscience.

New York, 1972. xlviii, 560 pp. \$19.95.

Yugoslav Scientific Research Guide

1970. Compiled by Reuf Bravo and Selma Bravo. Published for the National Library of Medicine and the National Science Foundation by Nolit, Belgrade, 1972 (available as TT 70-56091 from the National Technical Information Service, Springfield, Va.). xii, 634 pp. Paper, \$9.



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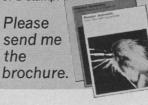
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